

# SILANE COUPLING AGENT FOR PRODUCING MOLDED ARTICLE OF EPOXY RESIN REINFORCED WITH GLASS FIBER

**Patent number:** JP8325439  
**Publication date:** 1996-12-10  
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**Classification:**  
 - international: C08L63/00; C07F7/18; C08J5/08; C08K5/54; C08K9/04  
 - european:  
**Application number:** JP19950156718 19950601  
**Priority number(s):**

## Abstract of JP8325439

**PURPOSE:** To obtain a silane coupling agent which is readily soluble in water and with which a molded glass-fiber-reinforced epoxy resin article having excellent soldering heat resistance can be produced in a short time, by using a specific aminosilane compound or a salt thereof.

**CONSTITUTION:** An aminosilane compound, N-(P-trimethyl)-&gamma;-aminopropyltriethoxysilane hydrochloride represented by the formula (wherein R<1> is H, methyl, or ethyl; (m) is 0-3; (n) is 1-6; and R<2> is a 1-10C alkyl) is obtained, for example, by introducing 1.0mol of &gamma;-aminopropyltriethoxysilane as a feedstock aminosilane into a reaction vessel, heating it to 60-80 deg.C, dropping 1.0mol of &alpha;-chloro-p-xylene as a halide thereinto, and reacting the mixture under stirring at 60-80 deg.C for 16hr. Methanol is added to this hydrochloride. Glass fibers are immersed in the resultant methanol solution as a surface treatment agent and then dried at 100-120 deg.C to obtain surface-treated glass fibers, which are impregnated with an epoxy resin to obtain a molded glass-fiber- reinforced epoxy resin.



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ACCESSION NUMBER: 126:172736 CA

TITLE: Silane coupling agents for glass fibers and  
manufacture of glass fiber-reinforced epoxy resin  
moldings with improved solder-heat resistance

INVENTOR(S): Suzuki, Yoshiharu

PATENT ASSIGNEE(S): Nitto Boseki Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

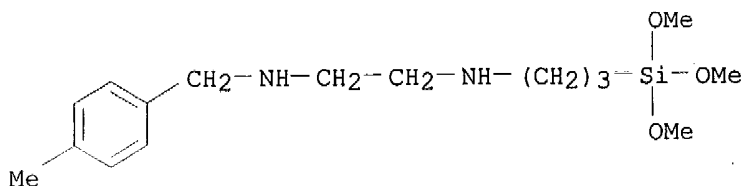
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PRIORITY APPLN. INFO.:			JP 1995-156718	19950601
OTHER SOURCE(S):			MARPAT 126:172736	

AB The coupling agents comprise aminosilanes  $R_1C_6H_4CH_2NH(CH_2CH_2NH)_m(CH_2)_nSi(O$   
 $R_2)_3$  ( $R_1 = H, Me, Et$ ;  $R_2 = C1-10$  alkyl;  $m = 0-3$ ,  $n = 1-6$ ) or their salts.  
 The process comprises treating the surface of glass fibers with the  
 coupling agents, followed by immersing the resulting fibers into epoxy  
 resins. Thus, 1.0 mol (.gamma.-aminopropyl)triethoxysilane and 1.0 mol  
 .alpha.-chloro-p-xylene reacted at 60-80.degree. for 16 h to give  
 N-(p-tolylmethyl)-.gamma.-(aminopropyl)triethoxysilane hydrochloride (I),  
 which was preserved as a MeOH soln. An aq. soln. contg. 0.7 part I and  
 0.5 part AcOH was used to impregnate WEA 18W 105 (a glass cloth), which  
 was squeezed to 28% pickup and dried at 110.degree. for 5 min to give a  
 reinforcing agent. Eight prepregs comprising the reinforcement and a  
 compn. comprising Epikote 5046B8 (brominated epoxy resin) 100, Epikote 154  
 20, dicyandiamide 4, 2-ethyl-4-methylimidazole 0.2, MEK 15, and DMF 30  
 parts were laminated and sandwiched between Cu foils at 170.degree. to  
 give a Cu-clad laminate.

IT 186653-85-0P 186653-86-1P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)(aminosilane coupling agents for glass fiber-reinforced epoxy resin  
moldings with improved solder-heat resistance)

RN 186653-85-0 CA

CN 1,2-Ethanediamine, N-[(4-methylphenyl)methyl]-N'-[3-  
(trimethoxysilyl)propyl]-, hydrochloride (9CI) (CA INDEX NAME)

● x HCl

RN 186653-86-1 CA

CN 1,2-Ethanediamine, N-[(4-methylphenyl)methyl]-N'-[3-  
(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)

Cc1ccc(cc1)CNCCN(C)C[Si](C)(C)OC